2018

Test 2198: John Deere 5125R PFC

Nebraska Tractor Test Laboratory
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NEBRASKA OECD TRACTOR TEST 2198–SUMMARY 1146
JOHN DEERE 5125R DIESEL
16 SPEED

PFC hydraulic system

POWER TAKE-OFF PERFORMANCE

Power HP *(kW)*	Crank shaft speed rpm	Diesel Consumption Gal/hr *(l/h)*	lb/hp.hr *(kg/kW.h)*	D.E.F. Consumption Hp.hr/gal *(kW.h/l)*	D.E.F. Consumption Gal/hr *(l/h)*	Mean Atmospheric Conditions
MAXIMUM POWER AND FUEL CONSUMPTION						
Rated Engine Speed—(PTO speed—566 rpm)						
114.12 *(85.10)*	2201	6.54 *(24.77)*	0.403 *(0.245)*	17.44 *(3.44)*	0.29 *(1.08)*	Fuel used during active exhaust regeneration-0.40 gal *(1.52 l)* (see note 1, p.2)
Standard Power Take-off Speed (540 rpm)						
119.37 *(89.02)*	2100	6.64 *(25.15)*	0.391 *(0.238)*	17.97 *(3.54)*	0.28 *(1.06)*	
Maximum Power (1 hour)						
124.57 *(92.89)*	1948	6.71 *(25.40)*	0.378 *(0.230)*	18.57 *(3.66)*	0.26 *(0.99)*	
VARYING POWER AND FUEL CONSUMPTION						
114.12 *(85.10)*	2201	6.54 *(24.77)*	0.403 *(0.245)*	17.44 *(3.44)*	0.29 *(1.08)*	Air temperature
99.87 *(74.47)*	2268	5.95 *(22.53)*	0.418 *(0.255)*	16.78 *(3.31)*	0.24 *(0.89)*	74°F *(23°C)*
75.49 *(56.29)*	2283	4.83 *(18.27)*	0.449 *(0.273)*	15.64 *(3.08)*	0.17 *(0.64)*	Relative humidity
50.59 *(37.73)*	2298	3.78 *(14.33)*	0.525 *(0.320)*	13.37 *(2.63)*	0.10 *(0.36)*	29%
25.52 *(19.03)*	2314	2.71 *(10.25)*	0.745 *(0.453)*	9.43 *(1.86)*	0.05 *(0.18)*	Barometer
1.08 *(0.81)*	2330	1.80 *(6.83)*	11.708 *(7.122)*	0.60 *(0.12)*	0.02 *(0.07)*	28.47" Hg *(96.40 kPa)*

Maximum torque - 379 lb.-ft. *(514 Nm)* at 1501 rpm
Maximum torque rise - 39.3%
Torque rise at 1761 engine rpm - 34%
Power increase at 1948 engine rpm - 9.2%

DRAWBAR PERFORMANCE
UNBALLASTED - FRONT DRIVE ENGAGED
FUEL CONSUMPTION CHARACTERISTICS

Power Hp *(kW)*	Drawbar pull lbs *(kN)*	Speed mph *(km/h)*	Crank-shaft speed rpm	Slip %	Fuel Consumption lb/hp.hr *(kg/kW.h)*	Fuel Consumption Hp.hr/gal *(kW.h/l)*	D.E.F. Consumption lb/hp.hr *(kg/kW.h)*	Temp.°F*(°C)* cool-ing med	Air dry bulb	Barom. inch Hg *(kPa)*
Power at Rated Engine Speed—8th(B4) Gear										
101.73 *(75.86)*	6991 *(31.10)*	5.46 *(8.78)*	2201	7.1	0.453 *(0.276)*	15.51 *(3.05)*	0.021 *(0.013)*	194 *(90)*	49 *(9)*	29.22 *(98.95)*
75% of Pull at Rated Engine Speed—8th(B4) Gear										
81.17 *(60.53)*	5254 *(23.37)*	5.79 *(9.32)*	2276	4.6	0.471 *(0.287)*	14.90 *(2.93)*	0.020 *(0.012)*	193 *(89)*	53 *(12)*	29.20 *(98.88)*
50% of Pull at Rated Engine Speed—8th(B4) Gear										
55.55 *(41.42)*	3505 *(15.59)*	5.95 *(9.57)*	2293	2.9	0.538 *(0.327)*	13.05 *(2.57)*	0.017 *(0.011)*	191 *(88)*	54 *(12)*	29.20 *(98.88)*
75% of Pull at Reduced Engine Speed— 10th(C2) Gear										
81.06 *(60.44)*	5272 *(23.45)*	5.77 *(9.28)*	1776	4.6	0.407 *(0.248)*	17.25 *(3.40)*	0.023 *(0.014)*	190 *(88)*	55 *(13)*	29.18 *(98.81)*
50% of Pull at Reduced Engine Speed— 10th(C2) Gear										
55.53 *(41.40)*	3505 *(15.59)*	5.95 *(9.57)*	1799	2.8	0.440 *(0.268)*	15.97 *(3.15)*	0.021 *(0.012)*	187 *(86)*	56 *(13)*	29.18 *(98.80)*

Location of tests: Nebraska Tractor Test Laboratory, University of Nebraska, Lincoln Nebraska 68583-0832
Dates of tests: April 11 - 24, 2018

Manufacturer: John Deere Commercial Products Inc., 700 Horizon South Parkway, Grovetown Ga. USA 30813

CONSUMABLE Fluids, OIL and TIME: Fuel No. 2 Diesel **Specific gravity converted to 60°/60°F *(15°/15°C)*** 0.8434 **Fuel weight** 7.023 lbs/gal *(0.842 kg/l)* **Diesel Exhaust Fluid (DEF)** 32% aqueous urea solution **DEF weight** 9.071 lbs/gal *(1.087 kg/l)* **Oil SAE** 10W30 **API service classification** CJ-4 **Transmission and hydraulic lubricant** John Deere Hy-Gard fluid **Front axle lubricant** John Deere Hy-Gard fluid **Total time engine was operated** 16.0 hours.

ENGINE: Make John Deere Diesel **Type** four cylinder vertical with turbocharger, air to air intercooler and D.E.F. (diesel exhaust fluid) exhaust treatment **Serial No.** *PE4045U056993* **Crankshaft** lengthwise **Rated engine speed** 2200 **Bore and stroke** 4.19" x 5.00" *(106.5 mm x 127.0 mm)* **Compression ratio** 16.9 to 1 **Displacement** 276 cu in *(4525 ml)* **Starting system** 12 volt **Lubrication** pressure **Air cleaner** two paper elements and aspirator **Oil filter** one full flow cartridge **Oil cooler** engine coolant heat exchanger for crankcase oil, radiator for hydraulic and transmission oil **Fuel filter** one paper element **Fuel cooler** radiator for return fuel **Exhaust** regenerative aftertreatment system consisting of DOC (diesel oxidation catalyst) and SCR (selective catalyst reduction) with an underhood muffler and vertical exhaust **Cooling medium temperature control** two thermostats and variable speed fan

ENGINE OPERATING PARAMETERS: Fuel rate: 43.2 - 46.7 lb/h *(19.6 - 21.2 kg/h)* **High idle:** 2300 - 2350 rpm **Turbo boost:** nominal 18.9 - 21.8 psi *(130 - 150 kPa)* as measured 20.8 psi *(143 kPa)*

CHASSIS: Type front wheel assist **Serial No.** *1LV5125RAHH400173* **Tread width** rear 60.0" *(1525 mm)* to 71.6" *(1819 mm)* front 58.6" *(1488 mm)* to 81.5" *(2070 mm)* **Wheelbase** 88.6" *(2250 mm)* **Hydraulic control system** direct engine drive **Transmission** selective gear fixed ratio **Nominal travel speeds mph *(km/h)*** first 1.35 *(2.17)* second 1.67 *(2.68)* third 2.07 *(3.33)* fourth 2.54 *(4.08)* fifth 3.13 *(5.03)* sixth 3.86 *(6.21)* seventh 4.78 *(7.70)* eighth 5.87 *(9.45)* ninth 6.05 *(9.74)* tenth 7.48 *(12.03)* eleventh 9.26 *(14.90)* twelfth 11.36 *(18.28)* thirteenth 13.55 *(21.81)* fourteenth 16.73 *(26.93)* fifteenth 20.73 *(33.36)* sixteenth 24.86 *(40.00)* electronically limited

DRAWBAR PERFORMANCE

UNBALLASTED - FRONT DRIVE ENGAGED-2200 ENGINE RPM
MAXIMUM POWER IN SELECTED GEARS

Power Hp *(kW)*	Drawbar pull lbs *(kN)*	Speed mph *(km/h)*	Crank-shaft speed rpm	Slip %	Fuel Consumption lb/hp.hr *(kg/kW.h)*	Hp.hr/gal *(kW.h/l)*	D.E.F. Consumption lb/hp.hr *(kg/kW.h)*	Temp.°F*(°C)* cool-ing med	Air dry bulb	Barom. inch Hg *(kPa)*
					6th(B2)Gear					
83.04	9087	3.43	2267	13.9	0.511	13.75	0.022	194	46	29.21
(61.92)	*(40.42)*	*(5.52)*			*(0.311)*	*(2.71)*	*(0.014)*	*(90)*	*(8)*	*(98.92)*
					7th(B3) Gear					
97.35	8587	4.26	2200	11.1	0.476	14.75	0.021	195	48	29.21
(72.59)	*(38.20)*	*(6.85)*			*(0.290)*	*(2.91)*	*(0.013)*	*(90)*	*(9)*	*(98.92)*
					8th(B4) Gear					
101.73	6991	5.46	2201	7.1	0.453	15.51	0.021	194	49	29.22
(75.86)	*(31.10)*	*(8.78)*			*(0.276)*	*(3.05)*	*(0.013)*	*(90)*	*(9)*	*(98.95)*
					9th(C1) Gear					
102.79	6831	5.64	2201	6.8	0.451	15.59	0.017	194	51	29.21
(76.65)	*(30.39)*	*(9.08)*			*(0.274)*	*(3.07)*	*(0.011)*	*(90)*	*(11)*	*(98.92)*
					10th(C2) Gear					
104.39	5512	7.11	2200	5.0	0.443	15.87	0.021	196	51	29.21
(77.84)	*(24.52)*	*(11.43)*			*(0.269)*	*(3.13)*	*(0.013)*	*(91)*	*(10)*	*(98.92)*
					*11th(C3) Gear					
107.82	4547	8.89	2199	3.8	0.437	16.06	0.020	197	52	29.21
(80.40)	*(20.23)*	*(14.31)*			*(0.266)*	*(3.16)*	*(0.012)*	*(92)*	*(11)*	*(98.92)*

*IPM activated

UNBALLASTED - FRONT DRIVE ENGAGED-1950 ENGINE RPM
MAXIMUM POWER IN SELECTED GEARS

Power Hp *(kW)*	Drawbar pull lbs *(kN)*	Speed mph *(km/h)*	Crank-shaft speed rpm	Slip %	Fuel Consumption lb/hp.hr *(kg/kW.h)*	Hp.hr/gal *(kW.h/l)*	D.E.F. Consumption lb/hp.hr *(kg/kW.h)*	Temp.°F*(°C)* cool-ing med	Air dry bulb	Barom. inch Hg *(kPa)*
					6th(B2) Gear					
83.10	9094	3.43	2267	14.0	0.510	13.77	0.022	193	47	29.22
(61.96)	*(40.45)*	*(5.52)*			*(0.310)*	*(2.71)*	*(0.014)*	*(89)*	*(8)*	*(98.93)*
					7th(B3) Gear					
97.51	8755	4.18	2184	12.0	0.478	14.71	0.021	194	48	29.22
(72.71)	*(38.94)*	*(6.73)*			*(0.291)*	*(2.90)*	*(0.013)*	*(90)*	*(9)*	*(98.95)*
					8th(B4) Gear					
105.55	8574	4.62	1958	11.7	0.451	15.56	0.018	195	50	29.22
(78.71)	*(38.14)*	*(7.44)*			*(0.275)*	*(3.07)*	*(0.011)*	*(91)*	*(10)*	*(98.95)*
					9th(C1) Gear					
106.78	8315	4.82	1953	10.4	0.444	15.83	0.014	195	51	29.21
(79.63)	*(36.99)*	*(7.75)*			*(0.270)*	*(3.12)*	*(0.009)*	*(90)*	*(11)*	*(98.92)*
					10th(C2) Gear					
111.41	6768	6.18	1951	6.8	0.425	16.52	0.011	197	51	29.21
(83.07)	*(30.10)*	*(9.94)*			*(0.259)*	*(3.25)*	*(0.007)*	*(92)*	*(11)*	*(98.92)*
					11th(C3) Gear					
113.44	5452	7.81	1951	4.9	0.417	16.85	0.012	197	52	29.21
(84.59)	*(24.25)*	*(12.56)*			*(0.253)*	*(3.32)*	*(0.007)*	*(92)*	*(11)*	*(98.92)*
					*12th(C4) Gear					
115.84	4486	9.69	1952	3.8	0.414	16.96	0.009	198	53	29.21
(86.38)	*(19.95)*	*(15.59)*			*(0.252)*	*(3.34)*	*(0.006)*	*(92)*	*(12)*	*(98.92)*

*IPM activated

Horizontal distances of drawbar hitch point behind rear wheel axis - 32.5"*(825 mm)*, 34.4" *(875 mm)*

TIRES AND WEIGHT

	Tested without ballast
Rear tires–No., size, ply & psi *(kPa)*	Two 460/85R30;**;12 *(85)*
Front tires–No., size, ply & psi *(kPa)*	Two 320/85R24;***;14 *(95)*
Height of drawbar	16.5 in *(420 mm)*
Static weight with operator– Rear	6205 lb *(2815 kg)*
– Front	3750 lb *(1701 kg)*
– Total	9955 lb *(4516 kg)*

reverse 1.44 *(2.32)*, 1.78 *(2.87)*, 2.21 *(3.55)*, 2.71 *(4.36)*, 3.34 *(5.37)*, 4.12 *(6.63)*, 5.11 *(8.22)*, 6.26 *(10.08)*, 6.46 *(10.39)*, 7.99 *(12.84)*, 9.88 *(15.90)*, 12.12 *(19.51)*, 14.46 *(23.27)*, 17.86 *(28.74)*, 18.65 *(30.00)*, 18.65 *(30.00)* electronically limited **Clutch** wet disc hydraulically actuated by foot pedal **Brakes** wet disc hydraulically actuated by two foot pedals which can be locked together **Steering** hydrostatic **Power take-off** 540 rpm at 2100 engine rpm, Economy PTO 540 rpm at 1645 engine rpm, 1000 rpm at 2103 engine rpm **Unladen tractor mass** 9780 lb *(4437 kg)*

REPAIRS AND ADJUSTMENTS: No repairs or adjustments.

NOTE 1: The manufacturer declares that the average time between active regenerations is 150 hours. A 8% power decrease was observed during the active exhaust regeneration.

NOTE 2: The performance data on this report applies to tractors with a Pressure-and-Flow Compensated(PFC) hydraulic system.

NOTE 3: This tractor has an engine control feature IPM (Intelligent Power Management) that allows the engine to run in a "boosted" mode, increased power level, at transport travel speeds.

REMARKS: All test results were determined from observed data obtained in accordance with official OECD, SAE and Nebraska test procedures. This tractor exceeded the 73 dB(A) sound power claim, with front drive engaged, by 82.0% (2.6 dB(A)) and with front drive disengaged by 77.8% (2.5 dB(A)). The performance figures on this summary were taken from a test conducted under the OECD Code 2 test procedure.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **2198**,Nebraska Summary 1146, June 15, 2018.

Roger M. Hoy
Director

M.F. Kocher
P.J. Jasa
J.D. Luck
Board of Tractor Test Engineers

Shiftable PTO Performance

Economy mode
540 PTO rpm @1645 engine rpm

Power HP *(kW)*	Crank shaft speed rpm	Diesel Consumption Gal/hr *(l/h)*	lb/hp.hr *(kg/kW.h)*	Hp.hr/gal *(kW.h/l)*	D.E.F. Consumption Gal/hr *(l/h)*
117.14 *(87.35)*	1644	6.07 *(22.98)*	0.364 *(0.221)*	19.30 *(3.80)*	0.29 *(1.09)*
87.80 *(65.48)*	1648	4.64 *(17.57)*	0.371 *(0.226)*	18.92 *(3.73)*	0.21 *(0.81)*
58.61 *(43.70)*	1651	3.30 *(12.47)*	0.395 *(0.240)*	17.78 *(3.50)*	0.13 *(0.48)*
29.29 *(21.85)*	1647	2.01 *(7.62)*	0.482 *(0.293)*	14.56 *(2.87)*	0.06 *(0.23)*
0.88 *(0.66)*	1654	1.11 *(4.18)*	8.788 *(5.345)*	0.80 *(0.16)*	0.01 *(0.02)*

Normal mode
540 PTO rpm @2100 engine rpm

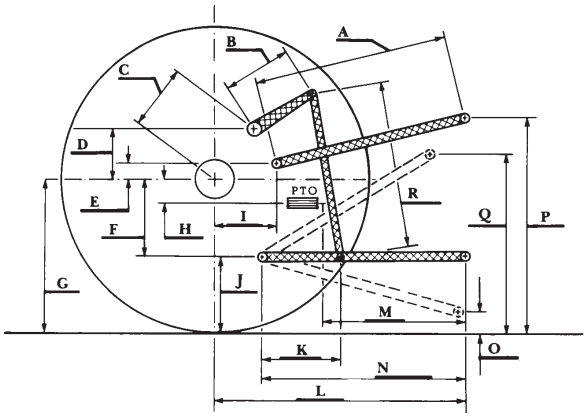
Power HP *(kW)*	Crank shaft speed rpm	Diesel Consumption Gal/hr *(l/h)*	lb/hp.hr *(kg/kW.h)*	Hp.hr/gal *(kW.h/l)*	D.E.F. Consumption Gal/hr *(l/h)*
117.11 *(87.33)*	2107	6.55 *(24.78)*	0.392 *(0.239)*	17.89 *(3.52)*	0.28 *(1.05)*
87.77 *(65.45)*	2104	5.10 *(19.32)*	0.408 *(0.248)*	17.20 *(3.39)*	0.20 *(0.75)*
58.59 *(43.69)*	2107	3.83 *(14.48)*	0.459 *(0.279)*	15.31 *(3.02)*	0.12 *(0.47)*
29.34 *(21.88)*	2104	2.52 *(9.55)*	0.604 *(0.367)*	11.63 *(2.29)*	0.03 *(0.10)*
0.92 *(0.69)*	2106	1.55 *(5.86)*	11.758 *(7.152)*	0.60 *(0.12)*	0.01 *(0.02)*

TRACTOR SOUND LEVEL WITH CAB	**Front Wheel Drive Engaged dB(A)**	**Disengaged dB(A)**
At no load in 7th(B3) gear	75.6	75.5
Transport in 16th (D4) gear		77.2
Bystander in 16th (D4) gear		83.0

HYDRAULIC PERFORMANCE

CATEGORY: II
Quick Attach: None
OECD Static test

		lift cylinders
Maximum force exerted through whole range:	7720 lbs *(34.3 kN)* (2 x 75 mm)	
	8678 lbs *(38.6 kN)*(2 x 80 mm)	
	single outlet set	two outlet sets combined
i) Sustained pressure of the open relief valve:	2894 psi *(199 bar)*	2900 psi *(200 bar)*
ii) Pump delivery rate at minimum pressure and rated engine speed:	29.5 GPM *(111.7 l/min)*	31.5 GPM *(119.2 l/min)*
iii) Pump delivery rate at maximum hydraulic power:	28.2 GPM *(106.9 l/min)*	31.0 GPM *(117.5 l/min)*
Delivery pressure:	2347 psi *(163 bar)*	2594 psi *(179 bar)*
Power:	38.7 HP *(28.8 kW)*	47.0 HP *(35.0 kW)*



HITCH DIMENSIONS AS TESTED—NO LOAD

	inch	*mm*
A	26.4	*670*
B	14.1	*358*
C	17.7	*449*
D	15.0	*380*
E	14.4	*365*
F	8.8	*223*
G	31.3	*795*
H	0.2	*4*
I	14.4	*365*
J	22.5	*572*
K	17.5	*444*
L	41.7	*1060*
M	23.0	*585*
N	33.1	*840*
O	9.1	*230*
P	46.5	*1182*
Q	38.4	*975*
R	32.3	*820*

RECOMMENDED CITATION FORMAT:
NTTL.(2018). Nebraska OECD tractor test 2198 for John Deere 5125R PFC Diesel. Lincoln, NE:Nebraska Tractor Test Laboratory. Retrieved from http://tractortestlab.unl.edu

JOHN DEERE 5125R DIESEL

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